

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A method of producing a magnetic disk for use in a magnetic disk apparatus of a load/ unload system, comprising:

forming at least a magnetic layer on a disk substrate, and

thereafter forming a carbon-based protection layer by plasma CVD using a mixed gas of a hydrocarbon-based gas and a nitrogen gas without containing an inactive gas under the condition that the disk substrate with the magnetic layer formed thereon is kept at a temperature higher than 200°C,

wherein a content of the nitrogen gas with respect to the hydrocarbon-based gas falls within a range between 0.5% and 6%,

wherein after forming the carbon-based protection layer, a surface of the magnetic disk is first cleaned with ultra pure water and thereafter is cleaned by dipping in isopropyl alcohol.

2. (Original): A method according to claim 1, wherein:

the mixed gas is a mixture of a low-molecular-weight straight-chain hydrocarbon-based gas and a nitrogen gas.

3. (currently amended): ~~A method according to claim 1~~ A method of producing a magnetic disk for use in a magnetic disk apparatus of a load/ unload system, comprising:

forming at least a magnetic layer on a disk substrate, and

thereafter forming a carbon-based protection layer by plasma CVD using a mixed gas of a hydrocarbon-based gas and a nitrogen gas without containing an inactive gas under the condition that the disk substrate with the magnetic layer formed thereon is kept at a temperature higher than 200°C.

wherein a content of the nitrogen gas with respect to the hydrocarbon-based gas falls within a range between 0.5% and 6%,

~~further comprising:~~

exposing the carbon-based protection layer to nitrogen plasma after forming the carbon-based protection layer so that the concentration of nitrogen with respect to carbon is approximately 8.5 at %, and

thereafter, a surface of the magnetic disk is first cleaned with ultra pure water and thereafter is cleaned by dipping in isopropyl alcohol.

4. (Original): A method according to claim 3, further comprising:
forming a lubrication layer after exposing the carbon-based protection layer to nitrogen plasma.

5. **(Cancelled).**

6. (Previously presented): A method according to claim 1, wherein:
B/A of Raman spectrum falls within a range of 1.2 to 1.5 in the carbon-based protection layer, B/A of the Raman spectrum being a ratio between a maximum peak intensity (B) of Raman spectrum as measured and a maximum peak intensity (A) of Raman spectrum after removal of background due to photoluminescence.

7. (previously presented): A method according to claim 2, wherein:
the low-molecular-weight straight-chain hydrocarbon-based gas is acetylene.

8. (previously presented): A method according to claim 1, wherein:
a part of hydrocarbons decomposed in plasma form chemically active carbon-nitrogen bond to form the carbon-based protection layer while the remaining part of the hydrogen carbons which are not decomposed or insufficiently decomposed in the plasma are incorporated to form the protection layer.

9. (previously presented): A method according to claim 1, wherein:
a thickness of the carbon-based protection layer has not smaller than 1 nm and not greater than 5 nm.

10. (previously presented): A method according to claim 1, wherein:
the disk substrate has a thickness between 0.1 mm and 1.5 mm.

11. (previously presented): A method according to claim 1, wherein:
the surface of the magnetic disk has a surface roughness R_{max} of 6 nm or less.